Explanatory summary of my work

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Summary

1. On Relativity

Note: the titles contain 2 links, the first points to the article stored on Academia, the second to the article stored on Blogspot

« What is the thickness of the event horizon of a black hole?»

https://www.academia.edu/85298332/What_is_the_thickness_of_the_event_horizon_of_a_black_hole
https://pengkuanonphysics.blogspot.com/2022, /08/what-is-thickness-of-event-horizon-of.html

«How galaxies make their rotation curves flat and what about dark matter?»

The rotation curves of disc galaxies are flat and dark matter is speculated as explanation. Alternatively, the gravity of material disk could explain the flat curves. Using the gravitational force that a disk exerts on a body in the disk, we have computed the the rotation curves of disc galaxies and the curve of their mass densities. The numerical result fits the flat curves and the observed mass densities of galaxies. This theory gives a new way to measure the masses of galaxies using their rotation velocities and shape.

https://www.academia.edu/46903516/How_galaxies_make_their_rotation_curves_flat_and_what_about_dark_matter
https://pengkuanonphysics.blogspot.com/2021/04/how-galaxies-make-their-rotation-curves.html

« Gravitational time dilation and black hole »

In this article, we derive the gravitational time dilation factor in a new manner, which allows us to identify the mathematical cause of Schwarzschild radius, to give a theoretical way to avoid it and to compute properties of black hole. General relativity effects are computed as simple as in special relativity. Observability of black hole is discussed.

https://www.academia.edu/45434676/Gravitational_time_dilation_and_black_hole
https://pengkuanonphysics.blogspot.com/2021/03/gravitational-time-dilation-and-black.html

« Analytical equation for Space-Time geodesics and relativistic orbit equation »

This article exposes an analytical orbit equation for relativistic gravity and explains how it is derived without Space-Time geodesics.

https://www.academia.edu/44540764/Analytical_orbit_equation_for_relativistic_gravity_without_using_Space_Time_geodesics
https://pengkuanonphysics.blogspot.com/2020/11/analytical-orbit-equation-for.html

« Relativistic kinematics »

The erroneous part of the initial version is suppressed

https://www.academia.edu/44582027/Relativistic_kinematics
https://pengkuanonphysics.blogspot.com/2020/11/relativistic-kinematics.html
Like in Newtonian kinematics, the relativistic change of reference frame must be a vector system of transformation laws for position, velocity and acceleration.

« Relativistic kinematics and gravitation (initial version)»
The part concerning gravitation is erroneous
https://www.academia.edu/42973353/Relativistic_kinematics_and_gravitation
https://pengkuanonphysics.blogspot.com/2020/05/relativistic-kinematics-and-gravitation.html
Like in Newtonian kinematics, the relativistic change of reference frame must be a vector system of transformation laws for position, velocity and acceleration.

« Time-rate change in relatively moving frames »
To clearly explain the contradiction between the constant flow of ticks delivered by clocks and the relativistic time dilation
https://www.academia.edu/44018092/Time_rate_change_in_relatively_moving_frames
https://pengkuanonphysics.blogspot.com/2020/09/time-rate-change-in-relatively-moving.html

« Explaining Oumuamua and Pioneer anomaly using Time relativity »
The part concerning gravitation is erroneous
Like in Newtonian kinematics, the relativistic change of reference frame must be a vector system of transformation laws for position, velocity and acceleration.

« Oumuamua, Pioneer anomaly and solar mass with Time Relativity »
The part concerning gravitation is erroneous
The theory of Time relativity explains well the weird behavior of the interstellar object ‘Oumuamua.

« Velocity, mass, momentum and energy of an accelerated object in relativity » .
Analytical derivation of relativistic velocity, mass, momentum and kinetic energy of an accelerated object.

« Time relativity transformation of velocity » .
Relativistic transformation of velocity creates a discrepancy. A discrepancy-free transformation of velocity is derived using the Time relativity transformation of coordinates.

« Time relativity transformation of coordinates » .
Without length contraction, time relativity transformation solves paradoxes and explains incongruent relativistic experiments

« Discrepancy of length contraction » .
Drawing relativity https://pengkuanonphysics.blogspot.com/2020/02/drawing-relativity.html

« Length, distance and Michelson–Morley experiment » .
There are 2 types of length contraction: Object contraction and Distance contraction. Each has a different physical meaning.

« Analysis of Einstein's derivation of the Lorentz Transformation » .
Einstein's derivation of the Lorentz Transformation is purely theoretical. This study shows how it is related to the physical phenomenon of time dilation and length contraction.

« Synchronizing moving GPS clocks » .
Relativity of simultaneity destroys synchronization of GPS satellites

« Testing relativity of simultaneity using GPS satellites »
Relativity of simultaneity can be measured with clocks of GPS satellites

« From Michelson–Morley experiment to length contraction »
Length contraction is used to explain Michelson–Morley experiment. But the variation of distance due to time dilation is more appropriate to explain this experiment.

« Astrophysical jet and length contraction »

Astrophysical jets are flows of matter that moves at relativistic speed. They are opportunity to see length contraction in action. An astrophysical jet is analyzed to explain the length contraction effect.

« How to test length contraction by experiment? »

Relativistic length contraction is theoretically predicted but not directly tested, which lead to incorrect interpretation of the theory illustrated by Bell's spaceship paradox and Ehrenfest paradox. But these paradoxes can help us designing experiments to test length contraction

« Twin paradox when Earth is the moving frame »

We analyze the mathematical mechanism that slows the time of the traveler in the twin paradox and explain what distinguishes the traveler's frame from the Earth's frame

2. My work On Mathematics

Note: the titles contain 2 links, the first points to the article stored in Academia, the second to the article stored in Blogspot

a. nD complex number and orientation

Kuan Peng, 2023, « Is Hilbert's Grand Hotel a paradox? »

Hilbert's Grand Hotel shows that a fully occupied hotel with infinitely many rooms can accommodate additional guests. But our analyze finds that this is not true.

https://drive.google.com/file/d/1DLMZ1hkL1VxxF3HDin7SvAvQC2FkgPY8/view?usp=drive_link

https://www.researchgate.net/publication

Kuan Peng, 2022, «Determination of the relative roll, pitch and yaw between arbitrary objects using 3D complex number»

https://pengkuanonmaths.blogspot.com/2022/12/determination-of-relative-roll-pitch.html

https://www.researchgate.net/publication

https://www.academia.edu/92242546/Determination_of_the_relative_roll_pitch_and_yaw_between_arbitrary_objects_using_3D_complex_number

Kuan Peng, 2022, « Computing orientation with complex multiplication but without trigonometric function »

Today's methods for computing orientation are quaternion and rotation matrix. However, their efficiencies are tarnished by the complexity of the rotation matrix and the counterintuitivity of quaternion. A better method is presented here. It uses complex multiplication for rotating vectors in 3D space and can compute orientation without angle and trigonometric functions, which is simple, intuitive and fast.

https://pengkuanonmaths.blogspot.com/2022, /05/computing-orientation-with-complex.html

https://www.researchgate.net/publication

https://www.academia.edu/80277267/Computing_orientation_with_complex_multiplication_but_without_trigonometric_function

«Procedure to convert 2D formula into 3D complex formula»

https://pengkuanonmaths.blogspot.com/2022, /04/procedure-to-convert-2d-formula-into-3d.html

«Rendering of 3D Mandelbrot, Lambda and other sets using 3D complex number system»

https://pengkuanonmaths.blogspot.com/2022, /04/rendering-of-3d-mandelbrot-lambda-and.html

https://www.academia.edu/92516029/Rendering_of_3D_Mandelbrot_Lambda_and_other_sets_using_3D_complex_number_system

«Example for "Extending complex number to spaces with 3, 4 or any number of dimensions" »

https://pengkuanonmaths.blogspot.com/2022, /02/example-for-extending-complex-number-to.html

https://drive.google.com/file/d/159FE7mCrLcjGz7MXqCEvRHAKBH6sWiKX/view?usp=sharing

Kuan Peng, 2022, «Extending complex number to spaces with 3, 4 or any number of dimensions»

Multidimensional complex systems with 3, 4 or more dimensions are constructed. They possess algebraic operations which have geometrical meanings. Multidimensional complex numbers can be written in Cartesian, trigonometric and exponential form and can be converted from one form to another. Each complex numbers has a conjugate. Multidimensional complex systems are extensions of the classical complex number system.

https://www.researchgate.net/publication

https://drive.google.com/file/d/159FE7mCrLcjGz7MXqCEvRHAKBH6sWiKX/view?usp=drive_link
https://www.academia.edu/71708344/Extending_complex_number_to_spaces_with_3_4_or_any_number_of_dimensions

«Step by step rotation in normal and high dimensional space and meaning of quaternion»

The orientation of body in space is defined 3 by angles. The step by step rotation process and chain of three-dots multiplication give an easy way to compute pile of rotations in 3D and high dimensional space and give a general orientation system. A visualization of quaternion is proposed.
https://drive.google.com/file/d/1fBV4HgOg6z49yMz6Ajlx3SbPKslMNg1T/view?usp=drive_link
https://www.researchgate.net/publication
https://www.academia.edu/52628458/Step_by_step_rotation_in_normal_and_high_dimensional_space_and_meaning_of_quaternion

b. Uncountability

Kuan Peng, 2022, «Real numbers and points on the number line with regard to Cantor's diagonal argument»

Cantor's diagonal argument claims that ℝ is uncountable. When we see real numbers as points on the number line, we can put a name on each point and put the names into a list without contravening Cantor's diagonal argument because we cannot create a diagonal from a list of names.
However, we do not need such a impossible list, but just to split R into two parts, S2 and S10. the members of S2 are real numbers expressed in binary, those of S10 in decimal. We create a list of real numbers by picking one member from S2 and one member from S10 alternately and forever. This list is a composite list whose members are in binary and decimal alternately. The diagonal of this list is a sequence of binary and decimal digits alternately and out-of-the-list-number cannot be constructed from it.
In fact, composite list can be created in splitting R into many subsets in numeral systems of different bases from which no out-of-the-list-number can be created and there is no real number excluded from the composite list. Because the composite list is constructed from the whole R and no real number is found outside, the composite list contains R.
If there is one list that contains R we can already conclude that R is countable. But the permutation of the subsets of R can create a huge number of different composite lists which all contain R. So, we conclude with confidence that R is countable. Then Cantor's diagonal argument fails.
Cantor's diagonal argument expresses real numbers only in one numeral system, which restricts the used list. If a binary list is shown not to contain R, this can be caused either by "list" or by "binary". Because Cantor has focused only on "list" overlooking "binary", this is the flaw that breaks Cantor's diagonal argument which then does not prove ℝ uncountable.
https://pengkuanonmaths.blogspot.com/2022, /10/real-numbers-and-points-on-number-line.html
https://www.researchgate.net/publication
https://www.academia.edu/88279926/Real_numbers_and_points_on_the_number_line_with_regard_to_Cantors_diagonal_argument

Kuan Peng, 2022, « Construction of the diagonal flipped number »

We write the natural numbers 1,2,3, … in column 1,write them in binary form in column 2, invert the bits of all the numbers of column 2, the leftmost bit becomes the rightmost bit etc, then add 0. on the left of each inverted number in the column 3 to make them smaller than 1. The column 3 is the list L and does not end. As the bits of all these numbers do not ends, each number in the list L is a real number. So, L contains all the real numbers in the interval [0, 1].
https://pengkuanonmaths.blogspot.com/2022/09/construction-of-diagonal-flipped-number.html
https://www.academia.edu/86917528/Construction_of_the_diagonal_flipped_number

Kuan Peng, 2022, «Examination of Cantor's proofs for uncountability and axiom for counting infinite sets»

An analysis of Cantor's theory of uncountable sets: The logic of his proofs has some weaknesses. Cantor assumes for both his proofs that all real numbers (set R) are in a list (list L). Considering L as a set this assumption assumes R belongs to L. This makes the claim "a real number is constructed but is not in the list L" questionable. We propose a solution to this problem, an axiom for counting infinite sets and a solution to continuum hypothesis.
https://www.researchgate.net/publication/
https://drive.google.com/file/d/1FtyEhXHOnDTRwWxF-DIpWRbS10B-JFSZ/view?usp=drive_link
https://www.academia.edu/86410224/Examination_of_Cantors_proofs_for_uncountability_and_axiom_for_counting_infinite_sets

Kuan Peng, 2018, « Graphic of set counting and infinite number»

When counting a set, we can plot a graphic that represents the members of the set on the plane (x, y) to observe visually the counting. Also, graphic of counting of infinite set helps us to understand infinite natural number.
https://drive.google.com/file/d/1i4i7GS6J4a4WwKkjZIUX1OUM5zzv-LpR/view?usp=drive_link
https://www.researchgate.net/publication
https://www.academia.edu/37766761/Graphic_of_set_counting_and_infinite_number

Kuan Peng, 2018, «Building set and counting set»

A counting set is the set of natural numbers with which a countable set is put in bijection. Is the counting set for the power set of ℕ the set that builds it?
https://pengkuanonmaths.blogspot.com/2018/10/building-set-and-counting-set.html
https://www.researchgate.net/publication
https://www.academia.edu/37590687/Building_set_and_counting_set

Kuan Peng, 2018, « Analysis of the proof of Cantor's theorem »

Cantor's theorem states that the power set of ℕ is uncountable. This article carefully analyzes this proof to clarify its logical reasoning
http://pengkuanonmaths.blogspot.com/2018/09/analysis-of-proof-of-cantors-theorem.html
https://www.researchgate.net/publication
https://www.academia.edu/37356452/Analysis_of_the_proof_of_Cantors_theorem

Kuan Peng, 2016, « Lists of binary sequences and uncountability »

Creation of binary lists, discussion about the power set of $\mathbb{N}$, the diagonal argument, Cantor's first proof and uncountability.
https://www.researchgate.net/publication
http://pengkuanonmaths.blogspot.com/2016/11/lists-of-binary-sequences-and.html
https://www.academia.edu/30072323/Lists_of_binary_sequences_and_uncountability

Kuan Peng, 2016, «Continuity and uncountability »

Discussion about continuity of line, how continuity is related to uncountability and the continuum hypothesis
http://pengkuanonmaths.blogspot.com/2016/11/lists-of-binary-sequences-and.html
https://www.researchgate.net/publication
https://www.academia.edu/28750869/Continuity_and_uncountability

Kuan Peng, 2016, «Cardinality of the set of decimal numbers »

Cardinalities of the set of decimal numbers and $\mathbb{R}$ are discussed using denominator lines and rational plane.
https://www.academia.edu/23155464/Cardinality_of_the_set_of_decimal_numbers
http://pengkuanonmaths.blogspot.com/2016/03/cardinality-of-set-of-decimal-numbers.html
https://www.researchgate.net/publication

Kuan Peng, 2016, «Prime numbers and irrational numbers »

The relation between prime numbers and irrational numbers are discussed using prime line and pre-irrationality.
https://www.academia.edu/22457358/Prime_numbers_and_irrational_numbers

Kuan Peng, 2016, « On Cantor's first proof of uncountability»

Discussion about Cantor's first proof using the next-interval-function, potential and actual infinity.
https://www.researchgate.net/publication
http://pengkuanonmaths.blogspot.com/2016/02/on-cantors-first-proof-of-uncountability.html
https://www.academia.edu/22104462/On_Cantors_first_proof_of_uncountability

Kuan Peng, 2016, «On the uncountability of the power set of $\mathbb{N}$»

This article discusses the uncountability of the power set of $\mathbb{N}$ proven by using the out-indexes subset contradiction.
https://www.researchgate.net/publication
http://pengkuanonmaths.blogspot.com/2016/02/on-uncountability-of-power-set-of.html
https://www.academia.edu/21601620/On_the_uncountability_of_the_power_set_of_N

Kuan Peng, 2016, « Hidden assumption of the diagonal argument»

This article uncovers a hidden assumption that the diagonal argument needs, then, explains its implications in matter of infinity.
https://www.academia.edu/20805963/Hidden_assumption_of_the_diagonal_argument
https://www.researchgate.net/publication/
http://pengkuanonmaths.blogspot.com/2016/01/hidden-assumption-of-diagonal-argument.html

Kuan Peng, 2016, «Which infinity for irrational numbers? »

This article clarifies the kind of infinity used to quantify the number of digits of irrational numbers and try to check the cardinality of decimal numbers.
https://www.academia.edu/20147272/Which_infinity_for_irrational_numbers
https://www.researchgate.net/publication/
http://pengkuanonmaths.blogspot.com/2016/01/which-infinity-for-irrational-numbers.html

Kuan Peng, 2015, «Continuous set and continuum hypothesis»

This article explains why the cardinality of a set must be either $\aleph_0$ or $|\mathbb{R}|$.
https://www.researchgate.net/publication/
http://pengkuanonmaths.blogspot.com/2015/12/continuous-set-and-continuum-hypothesis.html
https://www.academia.edu/19589645/Continuous_set_and_continuum_hypothesis

Kuan Peng, 2015, «Cardinality of the set of binary-expressed real numbers»

This article gives the cardinal number of the set of all binary numbers by counting its elements, analyses the consequences of the found value and discusses Cantor's diagonal argument, power set and the continuum hypothesis.
https://www.researchgate.net/publication/
https://www.academia.edu/19403597/Cardinality_of_the_set_of_binary-expressed_real_numbers
https://www.academia.edu/19403597/Cardinality_of_the_set_of_binary-expressed_real_numbers

Kuan Peng, «On Fermat's last theorem»
http://pengkuanonmaths.blogspot.com/2015/07/on-fermats-last-theorem.html
https://www.academia.edu/13665056/On_Fermat_s_last_theorem

3. On electromagnetism

I have published many articles indicating that the Lorentz force law is flawed. In order to help readers to understand my work, I make a brief guide of my articles. The corrected magnetic force law that I propose is identical to the Lorentz force law for closed coils but respects Newton's third law for differential current elements.

Note: the titles contain 2 links, the first points to the article stored on Blogspot, the second to the article stored on Academia

c. Proposed alternative laws

The proposed new law that corrects the flaw of the Lorentz force law. These laws enabled me to design the paradoxes and the experiments.

«Longitudinal magnetic force and high field magnet»

Theoretical explanation of longitudinal magnetic force and its practical application in high field magnet

«Plasma under Coulomb magnetic force»

Plasma is confined in fusion reactors using magnetic force. Coulomb magnetic force law for plasma is derived

«Coulomb magnetic force»

The relativistic length contraction effect and changing distance effect produce 2 different magnetic forces. Together they form complete magnetic force.

«Changing distance effect»

The motion of electrons in current modifies Coulomb force between charges by changing the distance between them. This effect creates magnetic force.

«Length-contraction-magnetic-force between arbitrary currents»

Formula for magnetic force between 2 arbitrary current elements derived from Coulomb's law and relativistic length contraction formula.

«Relativistic length contraction and magnetic force»

Derivation of the expression for the magnetic force between parallel current elements from relativistic length contraction formula.

Correct differential magnetic force law, pdf word

Derivation of the expression for differential magnetic force that respects Newton's third law while giving the same force for closed coils than the Lorentz force law.

Comparison of the 2 magnetic force laws (near a corner, force tends to infinity, pdf word

Computation of the magnetic force around an angular wire, the corrected law gives zero while the Lorentz force law gives infinity.

Correction to the Biot-Savart law, PDF, word

The corrected magnetic force law gives rise to a tensor magnetic field and thus overthrows the Biot-Savart law for magnetic field.

Why magnetic field must be a tensor? pdf, word

Physical explanation of the tensor magnetic field.

Unknown properties of magnetic force and Lorentz force law, Blogspot, word

Synthetic study that summarizes studies about the flaw of the Lorentz force law, the corrected magnetic force law and perpendicular and parallel action experiments.

d. Intuitive paradoxes

The circuits of these paradoxes give rise to non-zero self Lorentz force, violating Newton's third law. These self forces can be figured out intuitively using the Lorentz force law. These 5 contradictions are strong proofs of the wrongness of the Lorentz force law.

Analyze of the Lorentz forces internal to an equilateral triangle coil, html

2 straight wires making an angle exert a force on each other and their sum lies on the bisector. The 2 bisector-lying forces on the lower corners of a triangular coil sum to a downward self force, violating Newton's third law.

Paradoxical Lorentz force internal to a triangle coil, html

Place a wire inside a magnetic shield and it will not feel Lorentz force. Shield one side of a triangular coil, the non shielded sides will feel a Lorentz force which is a non-zero self force on the coil.

Lorentz forces internal to a polygon coil, analyze and computation, html

The pentagon coil has a sharp angular top and a high rectangular bottom. The top exerts on itself a force that depends on the angle, while the force on the rectangular bottom is constant. Varying independently, the forces on the top and the bottom do no cancel each other and make a non-zero self force.

Lorentz force on open circuit, Blogspot word

The 2 ball capacitors enable an alternate current to circulate in the angular wire that creates a Lorentz force on the wire. Since there is not straight wire connecting the 2 capacitors there is no counter force and the self force is not zero.

Self force of a 3D coil, pdf word

The 2 upward pointing corners of the 3D coil exert on themselves vertical forces that cannot be balanced by the forces on the 2 horizontal wires, violating Newton's third law.

e. Analytic computations of the self force of triangular coil

The 2 self forces computed analytically are non-zero and show that the Lorentz force law is wrong for any triangular coils.

Mathematical cause of the existence of the remaining resultant internal Lorentz force, pdf word

The relation between the forces on the 3 sides of a triangular coil must be linear if the self force is zero. But the Lorentz force law is non linear and the relation between the Lorentz forces on the 3 sides is non linear, giving rise to non-zero self force.

Proof of the remaining resultant Lorentz force internal to a triangular coil, pdf word

Analytical computation of the vertical self force a triangular coil exerts on itself. This force is always non-zero.

Synthesis of the inconsistency of the Lorentz force law, pdf word

2 examples that answer the objections to my theory: 1) The Lorentz force law gives zero self force for a system of 2 closed coils , but this self force becomes non-zero when the 2 coils merge into a single coil. 2) The angular top of a pentagon coil can rotate generating horizontal force that the bottom sides cannot cancel.

f. Numerical computation

The 3 self forces computed numerically are non-zero confirming the analytic computations.

Numerical computation of the Lorentz force internal to an asymmetric coil, Blogspot word

Numerical computation of the self force of coils formed with 2 half ellipses of different major axis. The computed values of the self force are all non-zero.

Computation of the self force of a coil, Blogspot word

The self force of an asymmetric coil (2 different half ellipses) is computed using different number of discretization, which converges to a definite value showing the consistency of the computation.

Unhappiness of Newton with Lorentz and triangular coil experiment, Blogspot word

The self force of a triangular coil is computed using the Lorentz force law and the corrected magnetic force law, which is non-zero for the former and zero for the latter.

g. Experiments

Experiments below show strange magnetic forces that the Lorentz force law cannot explain. They are experimental proofs of the incorrectness of this law.

- Theory explaining tangential magnetic force experiment

«Showing tangential magnetic force by experiment»

Theoretical explanation of tangential magnetic force and the experiment of rotating coil.

«Theory about parallel action experiment, Blogspot word»

Explanation of the experimental result using my corrected magnetic force law.

- Tangential magnetic force experiment

« Continuous rotation of a circular coil experiment »

Experiment that shows continuous rotation of a coil in its plane revealing the action of a magnetic force that is parallel to current.

≪Tangential magnetic force experiment with circular coil≫

Tangential magnetic force is shown in this experiment.

Current and parallel action, Blogspot, word

Second parallel action experiment in a configuration where the Lorentz force law's prediction is contrary to the experimental result. Numerical computation of the torque using my corrected magnetic force law and the Lorentz force law.

Lorentz parallel action experiment, Blogspot youtube

This experiment shows magnetic force parallel to current. Photographs and video.

Anti-Lorentzian Motor, pdf, word

A motor making use of the force parallel to current: A rectangular coil rotates parallel to the wires. Explanation using my corrected magnetic force law.

Circular motor driven by tangential magnetic force, pdf, word with video

A round coil rotates parallel to the wire showing a magnetic force tangential to the wire propelling a motor. Explanation using my corrected magnetic force law.

Detail of my circular motor using tangential force and the equivalence with homopolar motor, pdf, word

Disposition of the magnets and the coil of the circular motor and explanation of the reverse equivalence with a homopolar motor.

Tangential force motor with regular magnets, pdf, word with video

A round coil rotates parallel to the wires in a regular magnetic field showing the existence of parallel force in ordinary magnetic field. Effect of the U-turn wire.

Disc magnet parallel action experiment pdf Word with video included

Square coil showing parallel action due to the magnetic field of a round magnet

Earth's magnetic field and parallel action pdf word with video

Square coil showing parallel action due to terrestrial magnetic field

- perpendicular action experiment

Success of the modified Lorentz perpendicular action experiment, Blogspot word

This experiment shows a case where the magnitude of the force perpendicular to a current varies while according to the Lorentz force law it should be constant.

Lorentz perpendicular action experiment and Lorentz force law, Blogspot word

Explanation of the experimental result against the Lorentz force law's prediction.

Corrected law and Perpendicular action experiment, Blogspot word

Explanation of the experimental result using my corrected magnetic force law.

One way magnetic force, pdf, word

A weird magnetic effect: when a current flows in one direction there is a force but when the current is reversed, the force disappears. This force varies smoothly from maximal value to zero when the wire rotates 180°.

h. Macroscopic Aharonov–Bohm effect

Solenoid parallel action experiment

https://pengkuanem.blogspot.com/2015, /06/solenoid-parallel-action-experiment.html

This experiment will investigate the parallel action of a long solenoid. I have done this experiment and here is my result.

Q: Parallel action with a solenoid

More photograph of the hairpin wire

A 1.95 m long solenoid exerting Aharonov–Bohm force on a coil

http://pengkuanem.blogspot.fr/2015, /10/a-195-m-long-solenoid-exerting.html

https://www.academia.edu/17214485/A_1.95_m_long_solenoid_exerting_Aharonov_Bohm_force_on_a_coil

This experiment shows the magnetic force on a coil exerted by the magnetic field of a long solenoid that should be zero. Solenoid 2 m long.pdf

Aharonov–Bohm effect in CRT experiment PDF, Word with video

http://pengkuanem.blogspot.com/2015, /04/aharonovbohm-effect-in-crt-experiment.html

https://www.academia.edu/12052541/Aharonov_Bohm_effect_in_CRT_experiment_Video_included_

Image in a CRT TV set deflected by a long solenoid. Aharonov–Bohm effect in CRT.pdf

Consequences of macroscopic Aharonov-Bohm effect, Blogspot, word

The macroscopic force of Aharonov-Bohm effect overthrows the classical interpretations of this effect and has big consequence in quantum mechanics. Explanation using my corrected magnetic force law.

Macroscopic Aharonov–Bohm effect experiment and theory, pdf, word

http://www.academia.edu/3690352/Macroscopic_Aharonov-Bohm_effect_experiment_and_theory

http://pengkuanem.blogspot.com/2013/06/macroscopic-aharonovbohm-effect.html

This experiment shows the magnetic force on a wire in a region where the magnetic field should be zero. In this experiment, the long solenoid is simulated with a long bar magnet. Explanation using my corrected magnetic force law. Macroscopic Aharonov.pdf

Non-Lorentzian Magnetic force and Aharonov-Bohm effect in CRT, Blogspot, Word

http://pengkuanem.blogspot.com/2013/06/non-lorentzian-magnetic-force-and.html

https://www.academia.edu/3800480/Non-Lorentzian_Magnetic_force_and_Aharonov-Bohm_effect_in_CRT

This experiment shows that magnetic materials are attracted differently than usual in the mid-region of a bar magnet. Proposition of an experiment to test macroscopic Aharonov-Bohm effect in cathode ray tube. Non Lorentzian.pdf

i. Other studies

Paradoxes and solutions about Lorentz force law (complete study), pdf word
This article presents the paradox of non-zero self force of a triangular coil, B-cutting paradox (energy unbalance and zero electromotive force) and the corrected differential magnetic force law that solves these problems.

Magnetic field of a non-circular toroidal magnet, pdf, word
This experiment shows the magnetic field of a toroidal magnet formed with 2 horse-shoe magnets.

Perpendicular action experiment with a long rectangular coil, pdf, word
This experiment shows the magnetic force exerted by long straight wires.

Magnetism and dark matter
In my research on electromagnetism, I have understood that magnetism is forces created by moving charges and felt by moving charges. An electric current is a model of continuous flow of uncountable electrons moving in the same direction. This scheme seems benign but when I applied it to the Universe, I find in it a surprisingly judicious approach to solve the mystery of dark matter.

j. Incorrect studies

Not a "one-way" magnetic force, pdf, word
Magnetized wire effect and perpendicular action experiment Blogspot
Fail of the perpendicular action experiment, Blogspot word
Lorentz torque experiment, pdf word
Lorentz perpendicular action experiment, Blogspot word
Calculation of the Lorentz' Torque and the Ampere's torque, pdf, word
Curve shape of the magnetic torques, pdf word

4. Lists

a. List of my work on Relativity

1. Analytical equation for Space-Time geodesics and relativistic orbit equation
2. Relativistic kinematics
3. Relativistic kinematics and gravitation (initial version)
4. Time-rate change in relatively moving frames
5. Explaining Oumuamua and Pioneer anomaly using Time relativity
6. Oumuamua, Pioneer anomaly and solar mass with Time Relativity
7. Velocity, mass, momentum and energy of an accelerated object
8. Time relativity transformation of velocity
9. Time relativity transformation of coordinates
10. Discrepancy of length contraction
11. Length, distance and Michelson–Morley experiment
12. Analysis of Einstein's derivation of the Lorentz Transformation
13. Synchronizing moving GPS clocks
14. Testing relativity of simultaneity using GPS satellites
15. From Michelson–Morley experiment to length contraction
16. Astrophysical jet and length contraction
17. How to test length contraction by experiment?
18. Twin paradox when Earth is the moving frame

b. List of my work on electromagnetism

				Cachés	
1.		Lorentz torque.pdf			
2.	Paradoxical Lorentz force internal to a triangle coil, html		21/03/2012		
3.	Lorentz torque experiment, pdf word		22/03/2012		
4.	Lorentz forces internal to a polygon coil, analyze and computation, html		23/03/2012		
5.	Analyze of the Lorentz forces internal to an equilateral triangle coil, html		24/03/2012		
6.	I need help	I need help.pdf	02/04/2012		
7.	Proof of the remaining resultant Lorentz force internal to a triangular coil, pdf word	internal triangle.pdf	12/04/2012		
8.	Documents Links		14/04/2012		
9.	Mathematical cause of the existence of the remaining resultant internal Lorentz force, pdf word	Mechanism.pdf	19/04/2012		
10.	Paradoxes and solutions about Lorentz force law (complete study), pdf word	internal.pdf	23/04/2012		
11.	Synthesis of the inconsistency of the Lorentz force law, pdf word	geometry.pdf	23/04/2012		
12.	Correct differential magnetic force law, pdf word	Differential.pdf	01/05/2012		
13.	Calculation of the Lorentz' Torque and the Ampere's torque, pdf, word	torque calculation.pdf	03/05/2012		
14.	Comparison of the 2 magnetic force laws (near a corner, force tends to infinity, pdf word	Comparaison.pdf	05/05/2012		
15.	Curve shape of the magnetic torques, pdf word	torque_curve.pdf	11/05/2012		
16.	B-cutting paradox	B cutting.pdf	22/05/2012		
17.	Lorentz' EMF paradox	Lorentz EMF.pdf	31/05/2012		
18.	Lorentz' EMF Experiment	Lorentz EMF experiment.pdf	07/06/2012		
19.	B-Cutting Solution	B Solution.pdf	18/06/2012		
20.	Non Loop EMF Experiment	Non loop.pdf	20/06/2012		
21.	Displacement Current Paradox	displacement.pdf	08/07/2012		
22.	Phantom Lorentz force Paradox	phantom.pdf	16/07/2012		
23.	Electromagnetic Wave Paradox	wave.pdf	23/07/2012		
24.	Displacement magnetism experiment design	Displacement experiment.pdf	31/07/2012		
25.	Why EM wave equation does not conform to relativity? Short version of Electromagnetic Wave Paradox	wave short.pdf	01/08/2012		
26.	Deformation of EM wave signals	deformation.pdf	14/08/2012		
27.	Can EM wave go forward back?	differential velocity.pdf	19/08/2012		
28.	A wave that is out of phase with itself	out of phase.pdf	23/08/2012		
29.	Lorentz force on open circuit, Blogspot word	Lorentz force on open circuit.pdf	03/09/2012		
30.	Faraday's Law Paradox	Faraday.pdf	05/10/2012		
31.	Erratum in Faraday's law paradox		09/10/2012		
32.	Current loop inside a thin wire		12/10/2012		
33.	Can EMF's location be known?	Faraday Deeper.pdf	19/10/2012		
34.	Crux of the controversy about Faraday's law	Faraday crux.pdf	22/10/2012		
35.	Partial EMF measurement	Faraday location.pdf	01/11/2012		
36.	Faraday's torque experiment	Faraday torque.pdf	21/11/2012		
37.	Lorentz perpendicular action experiment, Blogspot word	Perpendicular action experiment.pdf	04/12/2012		
38.	Electromagnetic wave energy flux	power flow.pdf	20/12/2012		
39.	Energy density of electromagnetic wave	power density.pdf	24/01/2013		
40.	Fail of the perpendicular action experiment, Blogspot word	experiment fail.pdf	09/02/2013		
41.	Success of the modified Lorentz	Perpendicular action	21/02/2013		

	perpendicular action experiment, Blogspot word	success.pdf			
42.	Lorentz perpendicular action experiment and Lorentz force law, Blogspot word	Experiment and lorentz law.pdf	27/02/2013		
43.	Corrected law and Perpendicular action experiment, Blogspot word	Corrected law and Perpendicular action experiment .pdf	13/03/2013		
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45.	Theory about parallel action experiment, Blogspot word	Theory parallel.pdf	26/03/2013		
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55.	Correction to the Biot-Savart law, PDF, word	Corrected Biot.pdf	11/09/2013		
56.	Why magnetic field must be a tensor? pdf, word	Why magnetic field must be a tensor.pdf	24/09/2013		
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58.	Not a “one-way” magnetic force, pdf, word	Not one way magnetic force.pdf	21/10/2013		
59.	Anti-Lorentzian Motor, pdf, word	Anti-Lorentzian motor.pdf	06/01/2014		
60.	The magnetic field given by Ampere’s law is zero but the motor rotates	Zero magnetic field motor.pdf	13/01/2014		
61.	Magnetic field of a non-circular toroidal magnet, pdf, word	Horseshoe toroid.pdf	29/01/2014		
62.	Circular motor driven by tangential magnetic force, pdf, word with video	Circular parallel action.pdf	28/02/2014		
63.	Tangential force motor with regular magnets, pdf, word with video	Tangential force motor with regular magnets.pdf	13/03/2014		
64.	Tangential force motor with regular magnets Short version	Tangential force short.pdf	17/03/2014		
65.	Perpendicular action experiment with a long rectangular coil, pdf, word	Long rectangular coil.pdf	26/03/2014		
66.	Detail of my circular motor using tangential force and the equivalence with homopolar motor, pdf, word	For the magnet.pdf	05/08/2014		
67.	Self force of a 3D coil, pdf word	Self force of a 3D coil.pdf	20/11/2014		
68.	Explanatory summary of my work on Lorentz force law		28/11/2014		
69.	Tangential EMF experiment	Tangential EMF.pdf	09/12/2014		
70.	Is the tangential EMF due to a tilt of the coil?	Is the tangential EMF due to a tilt of the coil.pdf	18/12/2014		
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72.	Coil and resistor induction paradox	Coil and resistor induction paradox.pdf	26/02/2015,		
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74.	Non-loop induced voltage problem	Induced voltage in non-loop wire.pdf	28/03/2015,		
75.	Aharonov–Bohm effect in CRT experiment	Aharonov–Bohm effect in	21/04/2015,		

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77.	Q: Parallel action with a solenoid	Parallel action with a solenoid.pdf	17/05/2015,		
78.	Solenoid parallel action experiment	Solenoid parallel action experiment.pdf	01/06/2015,		
79.	More photograph of the hairpin wire		02/06/2015,		
80.	Earth's magnetic field and parallel action pdf word with video	Earth's magnetic field and parallel action.pdf	11/06/2015,		
81.	Disc magnet parallel action experiment pdf Word with video included	Disc magnet parallel action.pdf	17/06/2015,		
82.	Sliding wire parallel action experiment	sliding parallel action.pdf	01/07/2015,		
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86.	Tangential magnetic force experiment with circular coil	Tangential magnetic force with round coil.pdf	06/06/2017		
87.	Continuous rotation of a circular coil experiment	Continuous rotation of a circular coil experiment.pdf	22/06/2017		
88.	3.Changing distance effect	Changing distance effect.pdf	28/03/2018		
89.	4.Coulomb magnetic force	Coulomb magnetic force.pdf	28/03/2018		
90.	5.Plasma under Coulomb magnetic force	Plasma under Coulomb magnetic force.pdf	11/04/2018		
91.	6.Showing tangential magnetic force by experiment	Showing tangential magnetic force by experiment.pdf	17/05/2018		
92.	7.Longitudinal magnetic force and high field magnet	Longitudinal magnetic force.pdf	05/06/2018		